



Ethanol and Biodiesel Industry Update

Colorado's Changing Energy Technologies
October 19, 2005 - State Capital, Denver, CO

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Fuel Ethanol

- Ethanol (ethyl alcohol or grain alcohol) is a clear, colorless liquid produced via fermentation of sugars and starch
- It is the alcohol in beer, wine and distilled spirits
- Fuel ethanol is 200 proof ethanol denatured with about 5% gasoline to prevent human consumption

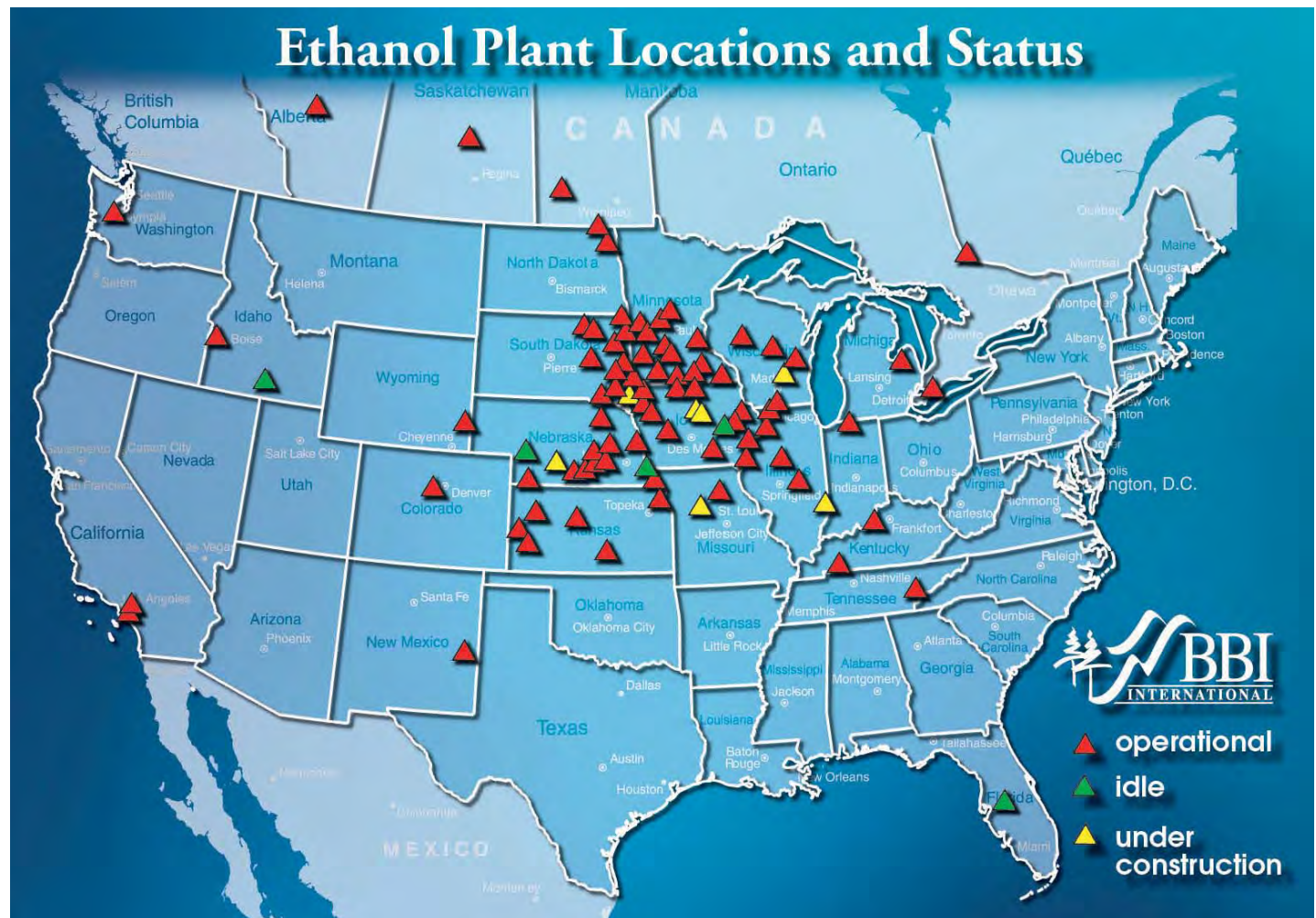


US Ethanol Market

- 97 ethanol plants with a production capacity of 4.2 billion gpy
- 26 plants under construction with capacity of 1.3 billion gallons
- Over 100 projects under development
- Market growth being driven by the phase out of MTBE and ethanol's price relative to gasoline



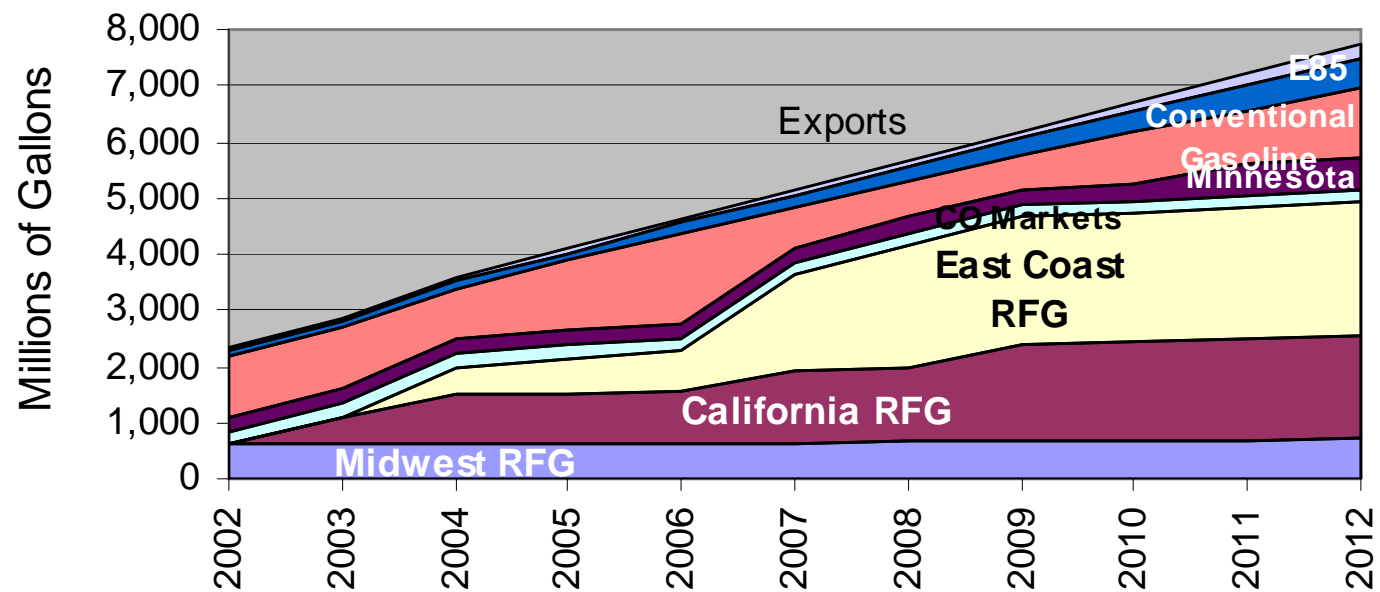
US Ethanol Plants





US Ethanol Production

**Projected US Fuel Ethanol Use by Market
(7.5 billion gpy RFS)**



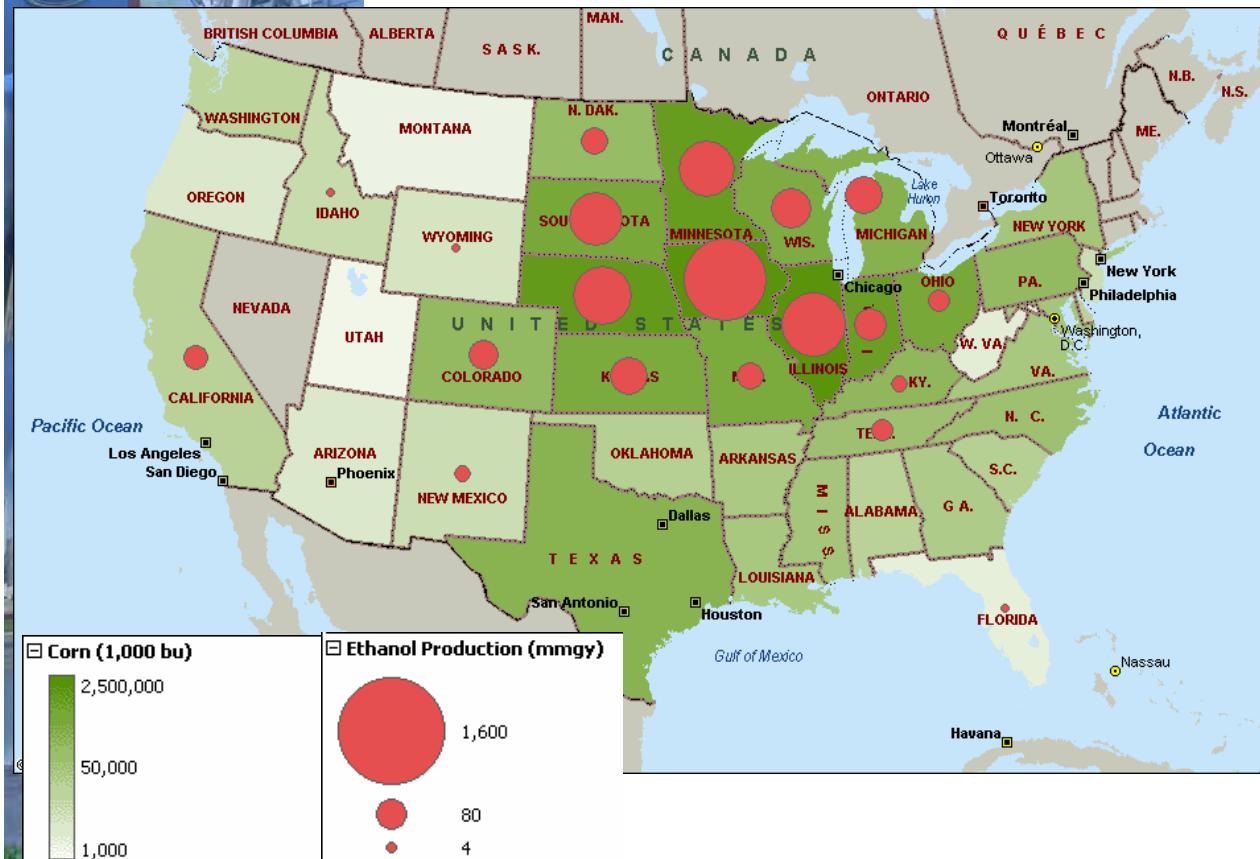


Colorado Ethanol Plants

- Merrick/Coors, Golden
 - 1.5 mmgy from beer waste
- Sterling Ethanol, LLC
 - 42 mmgy from corn
- Front Range Energy, LLC, Windsor
 - 40 mmgy from corn
- Under Development
 - Great Western Ethanol, Evans
 - Panda Energy, Yuma
 - Sun Energy, Walsh
 - Project in Lamar?



Colorado Ranks 10th in Ethanol Production



State	Ethanol Capacity* (mmgy)	Rank
Iowa	1,527	1
Illinois	805	2
Nebraska	642	3
Minnesota	581	4
South Dakota	529	5
Wisconsin	249	6
Kansas	214	7
Michigan	207	8
Indiana	160	9
Colorado	122	10
Missouri	100	11
North Dakota	89	12
California	69	13
Tennessee	60	14
Ohio	60	15
New Mexico	30	16
Kentucky	28	17
Idaho	6	18
Wyoming	5	19
Florida	4	20
Total	5,486	

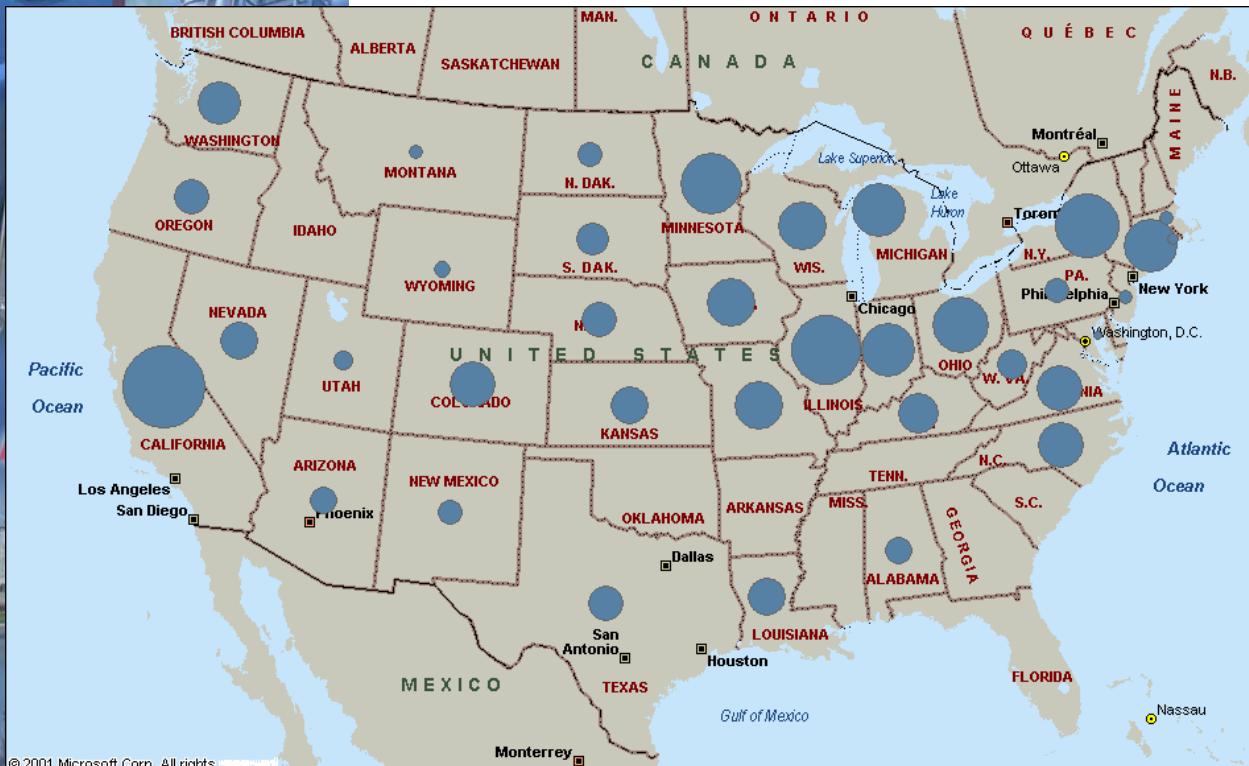


CO ranks 15th in Corn production

* Includes plants under construction



Colorado Ranks 13th in Ethanol Use



State	Estimated Ethanol Use (mmgy)	Rank
California	861	1
Illinois	474	2
New York	369	3
Minnesota	283	4
Ohio	226	5
Michigan	186	6
Connecticut	185	7
Indiana	171	8
Missouri	133	9
Wisconsin	133	10
Iowa	128	11
North Carolina	106	12
Colorado	102	13
Virginia	98	14
Washington	82	15
Kentucky	72	16
Louisiana	57	17
Nevada	54	18
Kansas	50	19
Other States	271	
TOTAL	4,041	





Biodiesel

- Biodiesel is produced from renewable oilseed crops such as soybeans or from waste vegetable oils
- Biodiesel works in any diesel engine with few or no modifications
- It offers enhanced lubricity and cetane, plus similar horsepower and torque when compared to petroleum diesel
- Over 500 major fleets use biodiesel nationwide



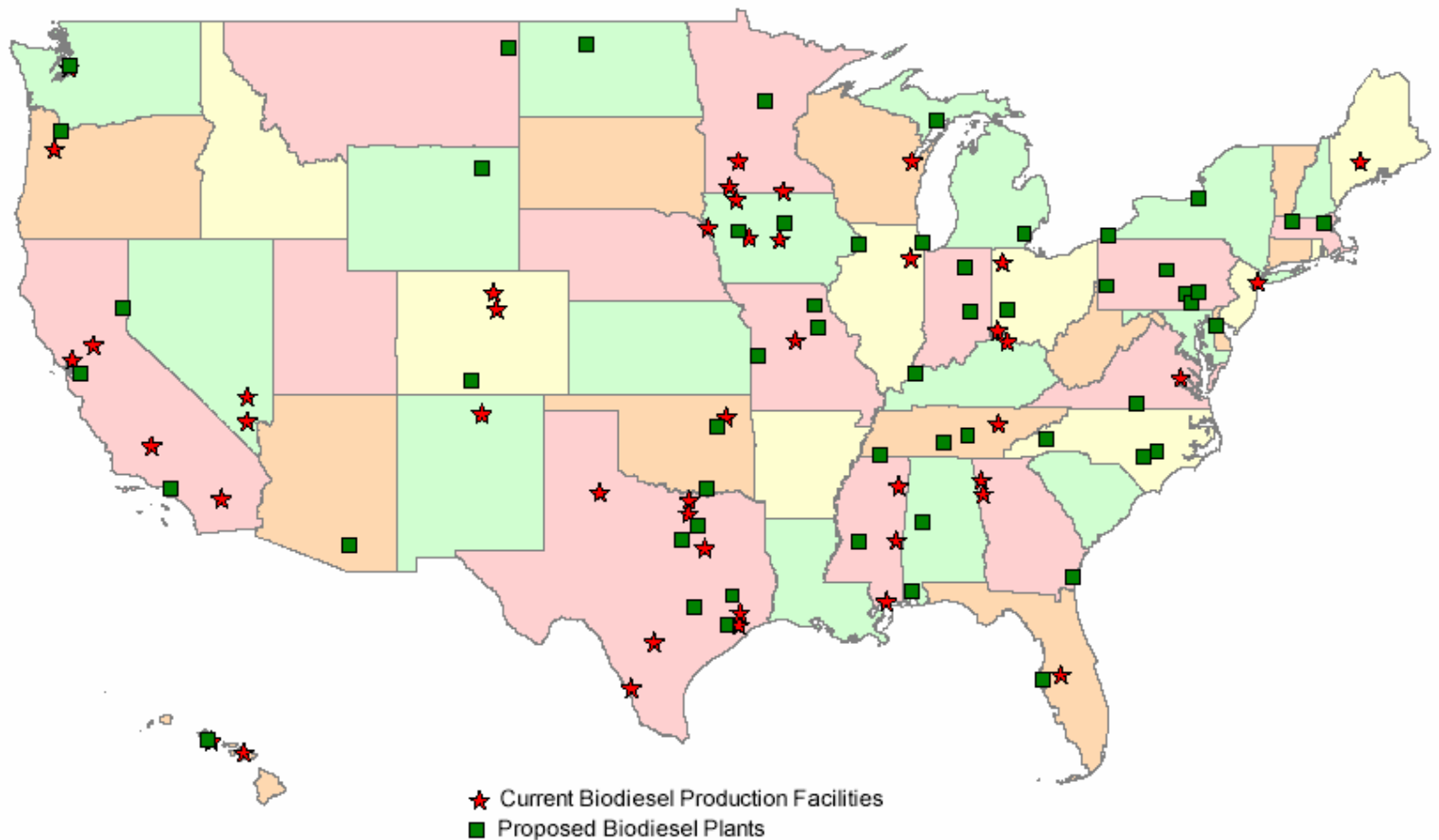
US Biodiesel Market

- 35 biodiesel plants in the US with over 50 projects under development
- 2004 sales were estimated at 25 million gallons
- By the end of 2005, there is expected to be more than 100 million gallons of new biodiesel capacity
- The biodiesel tax incentive, which took effect January 1, 2005, has had a dramatic and positive effect on demand



US Biodiesel Plants

September 2005



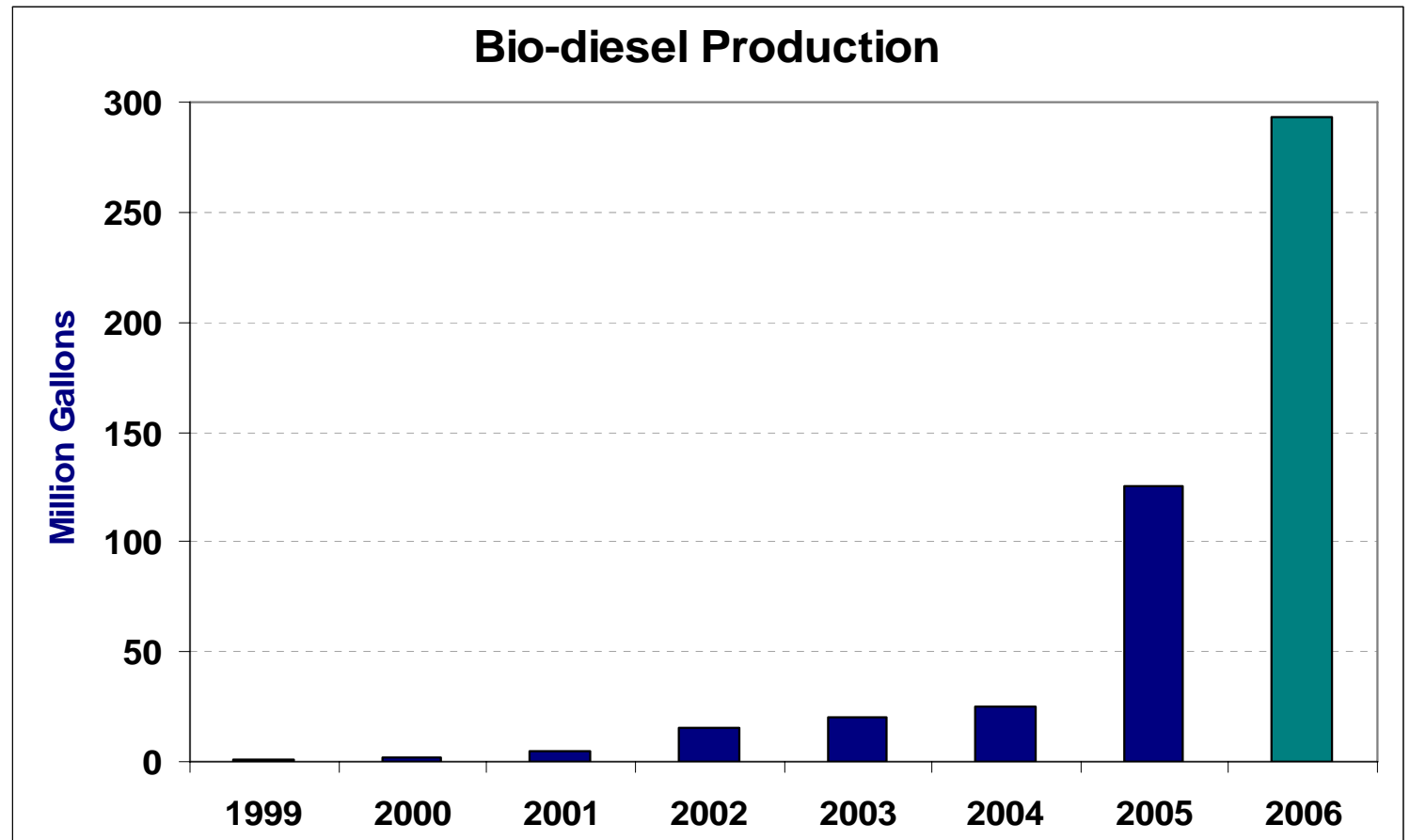


Biodiesel Plant Construction

- New plants that have started production in approximately the last six months include:
 - Bio Energy of Colorado (Denver)
 - Biodiesel of Mississippi, Inc. (Nettleton, Miss)
 - City of Denton (Denton, Texas)
 - Earth Biofuels (Meridian, Miss.)
 - Environmental Alternatives (Brooklyn, N.Y.)
 - FUMPA Biofuels (Redwood Falls, Minn)
 - Johann Haltermann, LTD (Houston)
 - Missouri Better Bean, (Bunceton, Mo.)
 - Peach State Labs (Rome, Ga.)
 - Seattle Biodiesel, LLC (Seattle)
 - South Texas Blending (Laredo, Texas)



US Biodiesel Production



Source: FC Stone



Colorado Biodiesel Plants

- Bio Energy Colorado, Denver
- Rocky Mountain Biodiesel Industries, Berthoud
- Under Development
 - Blue Sun Biodiesel, Alamosa



Benefits to Colorado

- Increased price for Colorado grain and oilseed crops
- Jobs in rural areas
- Increased tax revenue
- Lower priced gasoline and diesel fuel
- Increased fuel supply
- Improved energy security



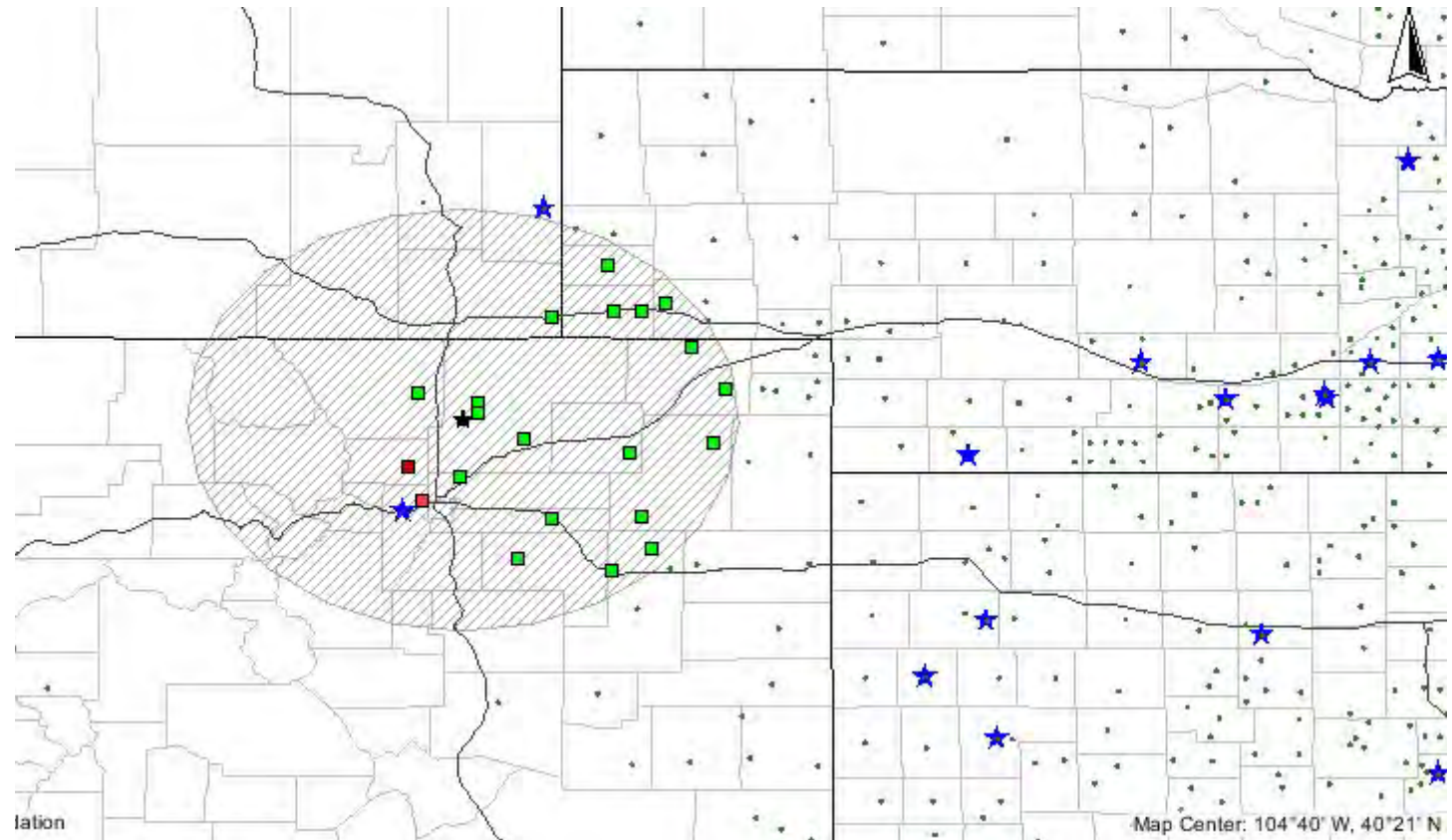
Basis Impact

- Basis is the local grain price compared to another market (usually the Chicago Board of Trade)
- Ethanol and biodiesel production will increase farm revenue if local crops are utilized



Basis Impact of FRE Plant

Average basis impact is estimated to be 13¢/bushel
Approximately \$4.3 million to CO corn growers





Siting an Ethanol Plant

- Low feedstock cost
- Proximity to ethanol markets (lower shipping costs)
- Low energy costs
- Large wet distillers grain market
- Tax abatements and economic development programs
- Local CO₂ market



Siting an Ethanol Plant

- Corn Belt Site
 - Corn available locally/lower cost
 - Ship ethanol and DDGS to local, regional and national markets
 - Probably won't sell CO₂
- Destination Site
 - Higher cost corn from multiple sources
 - Lower ethanol shipping costs
 - May have market for CO₂
 - Avoid shipping in corn and shipping out products



Destination Sites

- The best destination sites will have:
 - Large local ethanol market (< 150 miles)
 - A wet distillers market (dairies or feedlots within about 100 miles)
 - A large local dry distillers market
 - A CO₂ market
 - Source of low cost energy
 - Steam from an existing power plant
 - Coal or biomass fueled boiler
 - Natural gas transmission line
 - Unit train grain delivery capability



Colorado vs. Illinois Ethanol

- What is the cost of ethanol produced in Illinois?
- How does ethanol produced in Colorado compare?

CO vs. IL – Capital Costs



	Colorado Plant	Illinois Plant
Nameplate Ethanol Production (gal/year)	50,000,000	50,000,000
Project Engineering & Construction Costs		
EPC Contract	\$58,000,000	\$58,000,000
Substation & Natural Gas	\$1,000,000	\$1,000,000
Rail	\$1,500,000	\$1,500,000
Additional Grain Storage (1 million bu)	\$2,000,000	\$0
Construction Contingency	\$1,000,000	\$1,000,000
Total Engineering and Construction Cost	\$63,500,000	\$61,500,000
Owners Costs		
Inventory - Grain	\$2,100,000	\$1,200,000
Inventory - Chemicals/Yeast/Denaturant	\$260,000	\$260,000
Inventory - Spare Parts	\$400,000	\$400,000
Preproduction Costs	\$1,000,000	\$1,000,000
Land	\$250,000	\$250,000
Office & Communications Equipment	\$250,000	\$250,000
Insurance & Performance Bond	\$500,000	\$500,000
Administration Building	\$300,000	\$300,000
Site Development	\$3,000,000	\$3,000,000
Rolling Stock	\$350,000	\$350,000
Organizational Costs	\$1,000,000	\$1,000,000
Capitalized Interest & Financing Costs	\$2,500,000	\$2,500,000
Working Capital/Risk Management	\$7,500,000	\$7,500,000
Total Owners Costs	\$19,410,000	\$18,510,000
Total Project Capital Cost	\$82,910,000	\$80,010,000

CO vs. IL – Operating Costs



Product Values	Colorado Plant	Illinois Plant
Conversion Rate (gal Ethanol/Bushel of Corn)	2.67	2.67
Grain (\$/Bu)	2.70	2.35
Grain Handling/Throughput Fees (\$/bu)	0.00	0.00
Ethanol (\$/gal)	1.35	1.35
Ethanol Shipping Cost (\$/gal)	0.09	0.09
Ethanol Sales Commission (\$/gal)	0.01	0.01
DDGS (\$/ton)	102.10	88.87
DDGS Commission (\$/ton)	2.04	1.78
DWG (\$/ton)	35.94	32.58
DWG Commission (\$/ton)	1.44	1.30
% DWG Sold in Year 1	100%	0%
% DWG Sold in Year 2	100%	10%
% DWG Sold in Years 3 through 10	100%	20%
CO2 (\$/ton)	15.00	0.00
Denaturant (\$/gal)	1.00	1.00
Natural Gas (\$/MMBTU)	8.00	8.00
Electricity (\$/kWh)	0.040	0.040
Makeup Water (\$/1000 gal)	0.25	0.25
Wastewater (\$/1000 gal)	2.00	2.00



CO vs. IL – Income Statement

Proforma Income Statement for Year 2	Colorado Plant		Illinois Plant	
Ethanol Production (gal/year)	50,000,000		50,000,000	
	\$/Year	\$/gal	\$/Year	\$/gal
Net Revenue				
Ethanol	\$63,750,000	\$1.275	\$63,750,000	\$1.275
DDGS	\$0	\$0.000	\$12,709,342	\$0.254
DWG	\$15,261,044	\$0.305	\$1,383,621	\$0.028
Carbon Dioxide	\$1,547,464	\$0.031	\$0	\$0.000
Federal Small Producer Tax Credit	\$1,500,000	\$0.030	\$1,500,000	\$0.030
Total Revenue	\$82,058,508	\$1.641	\$79,342,963	\$1.587
		\$0.054		
Production & Operating Expenses				
Feedstocks	\$48,635,634	\$0.973	\$42,331,015	\$0.847
Chemicals, Enzymes & Yeast	\$3,366,667	\$0.067	\$3,366,667	\$0.067
Natural Gas	\$9,248,000	\$0.185	\$13,409,600	\$0.268
Electricity	\$1,457,143	\$0.029	\$1,457,143	\$0.029
Denaturants	\$2,428,571	\$0.049	\$2,428,571	\$0.049
Makeup Water	\$90,066	\$0.002	\$90,066	\$0.002
Effluent Treatment & Disposal	\$144,106	\$0.003	\$144,106	\$0.003
Production Labor & Benefits	\$1,124,989	\$0.022	\$1,124,989	\$0.022
Total Production Costs	\$66,495,175	\$1.330	\$64,352,156	\$1.287
		(\$0.043)		
Gross Profit	\$15,563,333	\$0.311	\$14,990,807	\$0.300
		\$0.011		

CO vs. IL Ethanol

	Colorado	Illinois	CO - IL
	(\$/gallon ethanol)		
Grain	\$0.97	\$0.85	\$0.13
Chemicals, Enzymes	\$0.07	\$0.07	\$0.00
Natural Gas	\$0.18	\$0.27	(\$0.08)
Ethanol Shipping	\$0.09	\$0.09	\$0.00
DDGS + DWG	(\$0.31)	(\$0.28)	(\$0.02)
Carbon Dioxide	(\$0.03)	\$0.00	(\$0.03)
TOTAL	\$0.98	\$0.99	(\$0.01)





Summary

- Ethanol and Biodiesel plants provide many benefits to local communities
- Consider all issues when siting your project:
 - Delivered feedstock price
 - Product shipping costs
 - Co-product markets
 - Energy costs
 - Community acceptance

Thank You!



www.bbiethanol.com

